

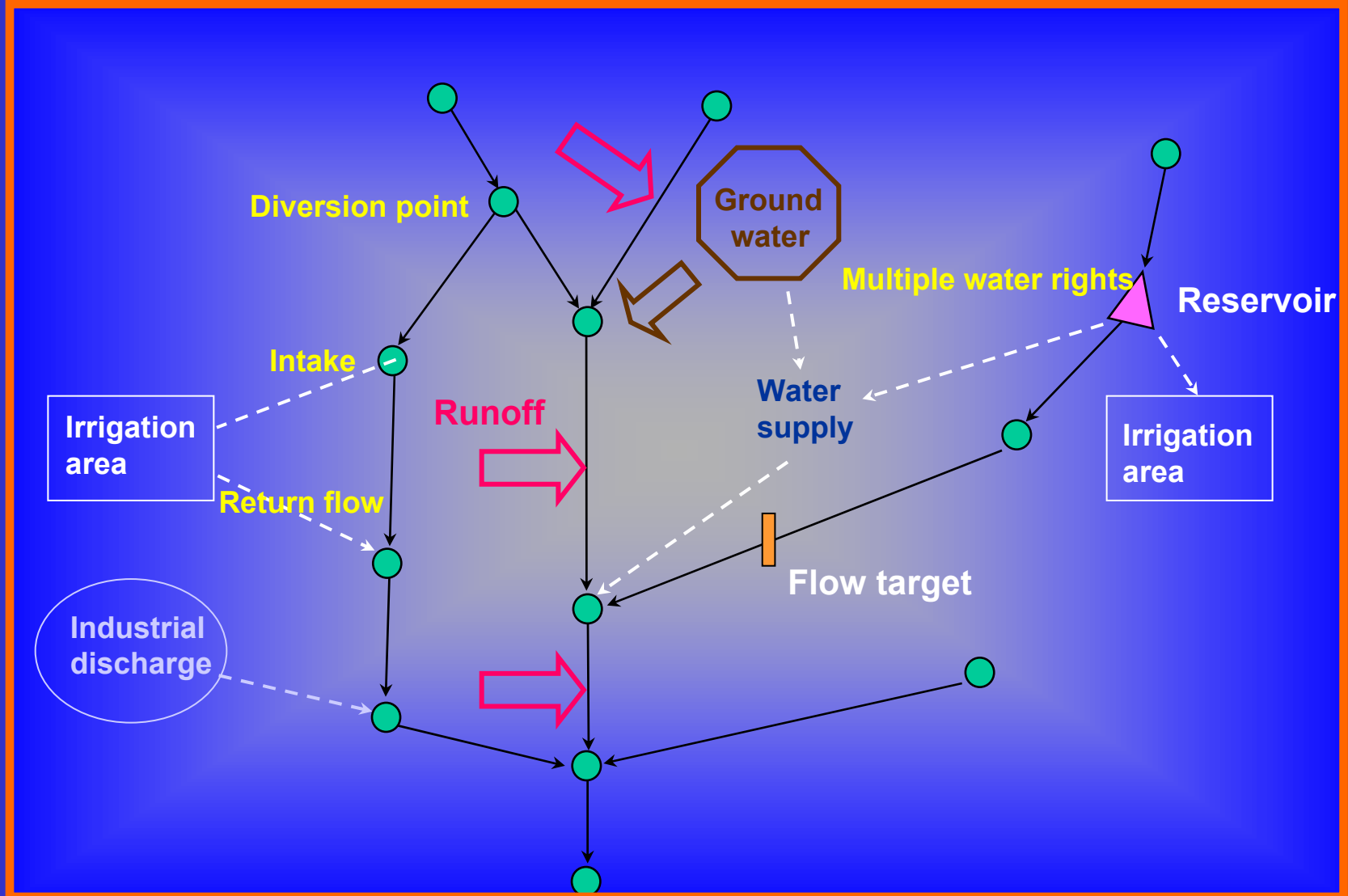
Thousand Springs MIKE Basin Model

December 1, 2003



MIKE Basin: A Simple Concept

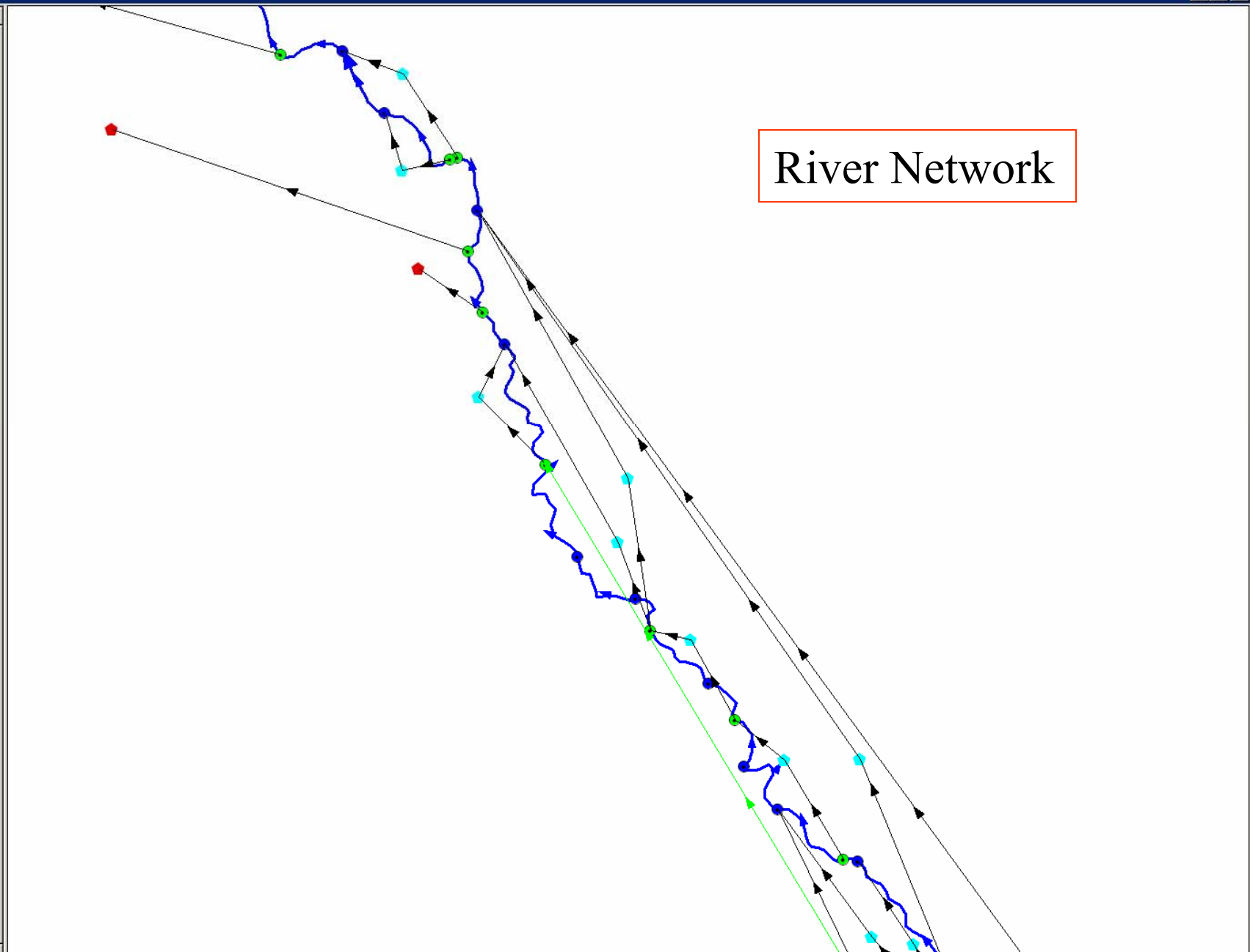
Overview





MIKE BASIN Network View

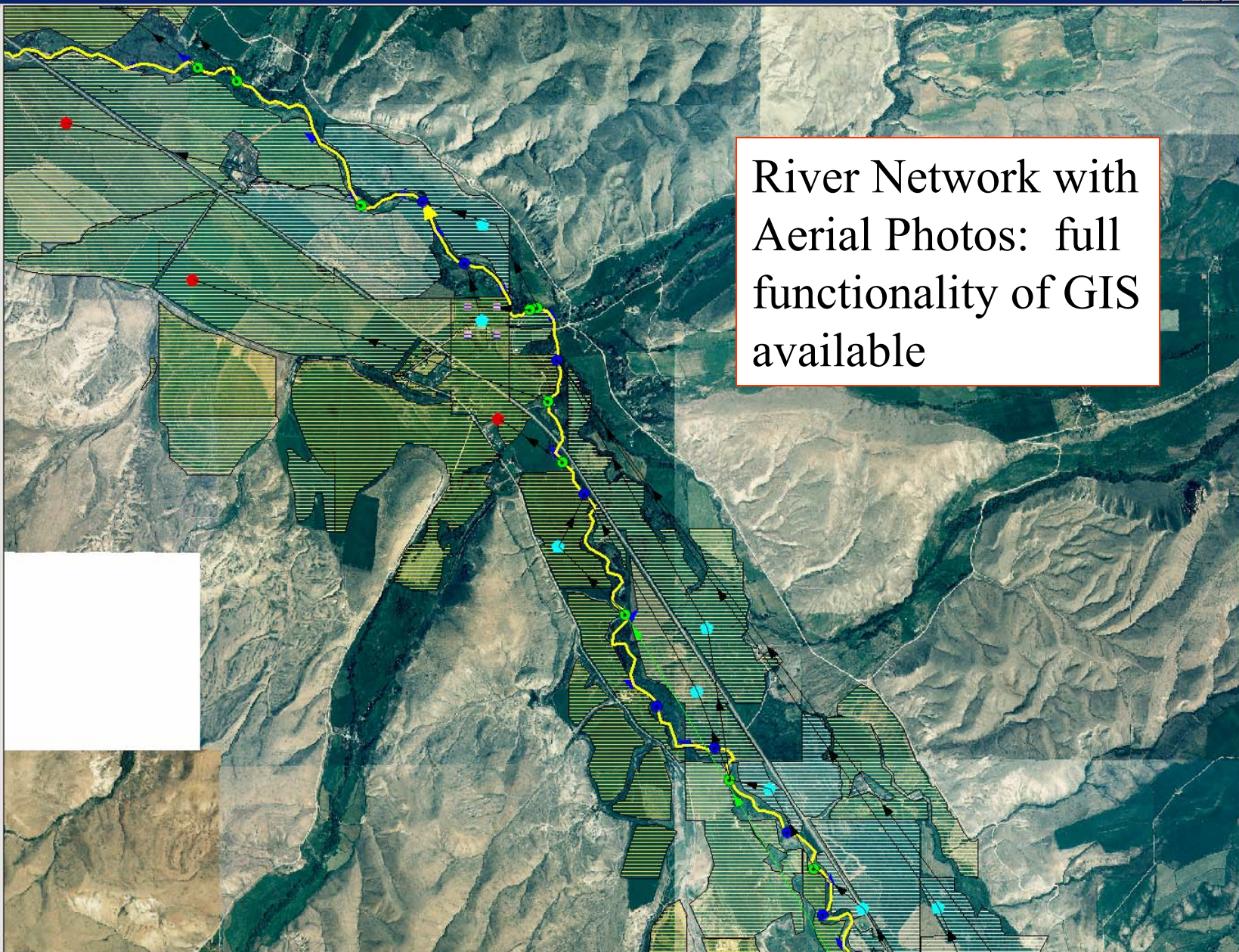
- dropower.shp
- reservoir.shp
- regulation.shp
 - Withdrawal
 - Discharge
 - Combined
- watersupply.shp
 - Withdrawal
 - Discharge
 - Combined
- des.shp
 - Node
 - Diversion
 - Oftake
- branches.shp
- network.shp
 - Digitized lines
- shoff.shp
- nhiusgsgages.shp
- 4-by-ldiv.shp
 - 1 - 3
 - 4 - 8
 - 9 - 15
 - 16 - 20
 - 21 - 63
- weatherstations.shp
- data_stations.shp
- nhidiversions.shp
- gsreach.shp
- sin74.sid
- nhri_riv100.shp
- sin74.sid





MIKE BASIN Network View

- ☒ Hydropower.shp
- ☒ Reservoir.shp
- ☒ Irrigation.shp
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 - Discharge
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On screen editing
of river network

Irrigation Properties

General Agriculture

General

Description

Scheme ty Combined

Scheme name Irrigation: L-11

Scheme ID 54

Priority of inflow connection(s)

Node Id N83

Priority of groundwater inflow connector

Node Id

Return flow connection

Node Id N84

Timeseries data

Filename lemhiir_l11.d

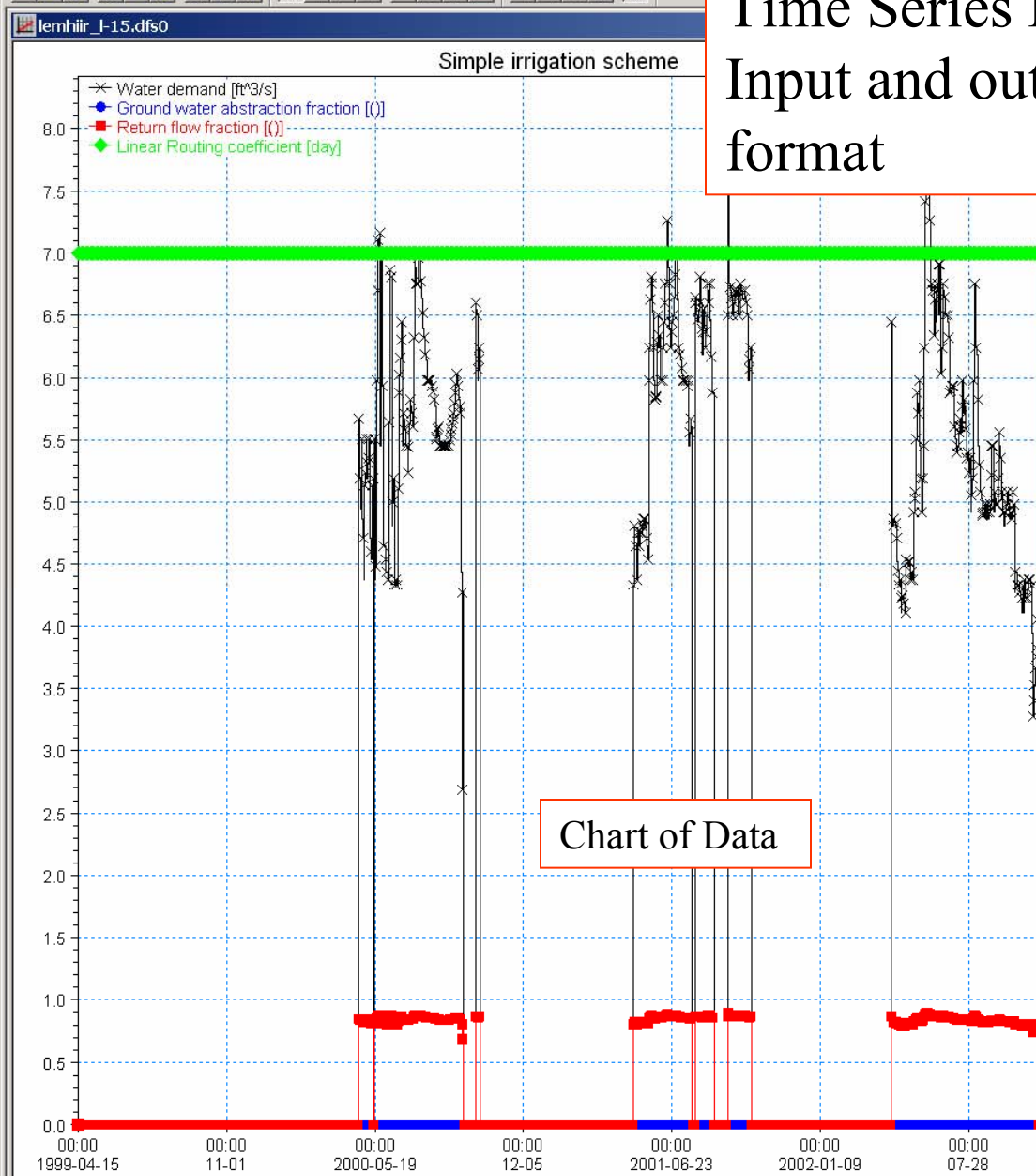
New Edit

Demand multiplier 1

Help Apply Ok Cancel

Directs MIKE Basin to appropriate time
series file (see next slide for time series
file example)

Time Series File: Input and output format



Time	Water demand	Ground water	Return flow fr	Linear Routin
1999 00:	0	0	0	7
1999 00:	0	0	0	7
1999 00:	0	0	0	7
1999 00:	0	0	0	7
1999 00:	0	0	0	7
1999 00:	0	0	0	7
6 4/21/1999 00:	0	0	0	7
7 4/22/1999 00:	0	0	0	7
8 4/23/1999 00:	0	0	0	7
9 4/24/1999 00:	0	0	0	7
10 4/25/1999 00:	0	0	0	7
11 4/26/1999 00:	0	0	0	7
12 4/27/1999 00:	0	0	0	7
13 4/28/1999 00:	0	0	0	7
14 4/29/1999 00:	0	0	0	7
15 4/30/1999 00:	0	0	0	7
16 5/1/1999 00:0	0	0	0	7
17 5/2/1999 00:0	0	0	0	7
18 5/3/1999 00:0	0	0	0	7
19 5/4/1999 00:0	0	0	0	7
20 5/5/1999 00:0	0	0	0	7
21 5/6/1999 00:0	0	0	0	7
22 5/7/1999 00:0	0	0	0	7
23 5/8/1999 00:0	0	0	0	7
24 5/9/1999 00:0	0	0	0	7
25 5/10/1999 00:	0	0	0	7
26 5/11/1999 00:	0	0	0	7
27 5/12/1999 00:	0	0	0	7
28 5/13/1999 00:	0	0	0	7
29 5/14/1999 00:	0	0	0	7
30 5/15/1999 00:	0	0	0	7
31 5/16/1999 00:	0	0	0	7
32 5/17/1999 00:	0	0	0	7
33 5/18/1999 00:	0	0	0	7
34 5/19/1999 00:	0	0	0	7
35 5/20/1999 00:	0	0	0	7
36 5/21/1999 00:	0	0	0	7
37 5/22/1999 00:	0	0	0	7
38 5/23/1999 00:	0	0	0	7
39 5/24/1999 00:	0	0	0	7
40 5/25/1999 00:	0	0	0	7
41 5/26/1999 00:	0	0	0	7
42 5/27/1999 00:	0	0	0	7
43 5/28/1999 00:	0	0	0	7
44 5/29/1999 00:	0	0	0	7
45 5/30/1999 00:	0	0	0	7
46 5/31/1999 00:	0	0	0	7
47 6/1/1999 00:0	0	0	0	7
48 6/2/1999 00:0	0	0	0	7
49 6/3/1999 00:0	0	0	0	7
50 6/4/1999 00:0	0	0	0	7
51 6/5/1999 00:0	0	0	0	7



MIKE BASIN Network View

✓ Test IrrigationNode Relativ

0 - 10

10 - 20

20 - 30

30 - 40

40 - 50

50 - 60

60 - 70

70 - 80

80 - 90

90 - 100

No Data

✓ Test Branch Flow.shp

< 0

0 - 0.24926

0.24926 - 0.49852

0.49852 - 0.74778

0.74778 - 0.99704

0.99704 - 1.2463

1.2463 - 1.49556

1.49556 - 1.74482

1.74482 - 1.99408

1.99408 - 2.24334

2.24334 - 2.4926

> 2.4926

No Data

✓ Results.shp

test.run

CatchmentNode

Irrigation

Node

✓ Hydropower.shp

✓ Watersupply.shp

Withdrawal

Discharge

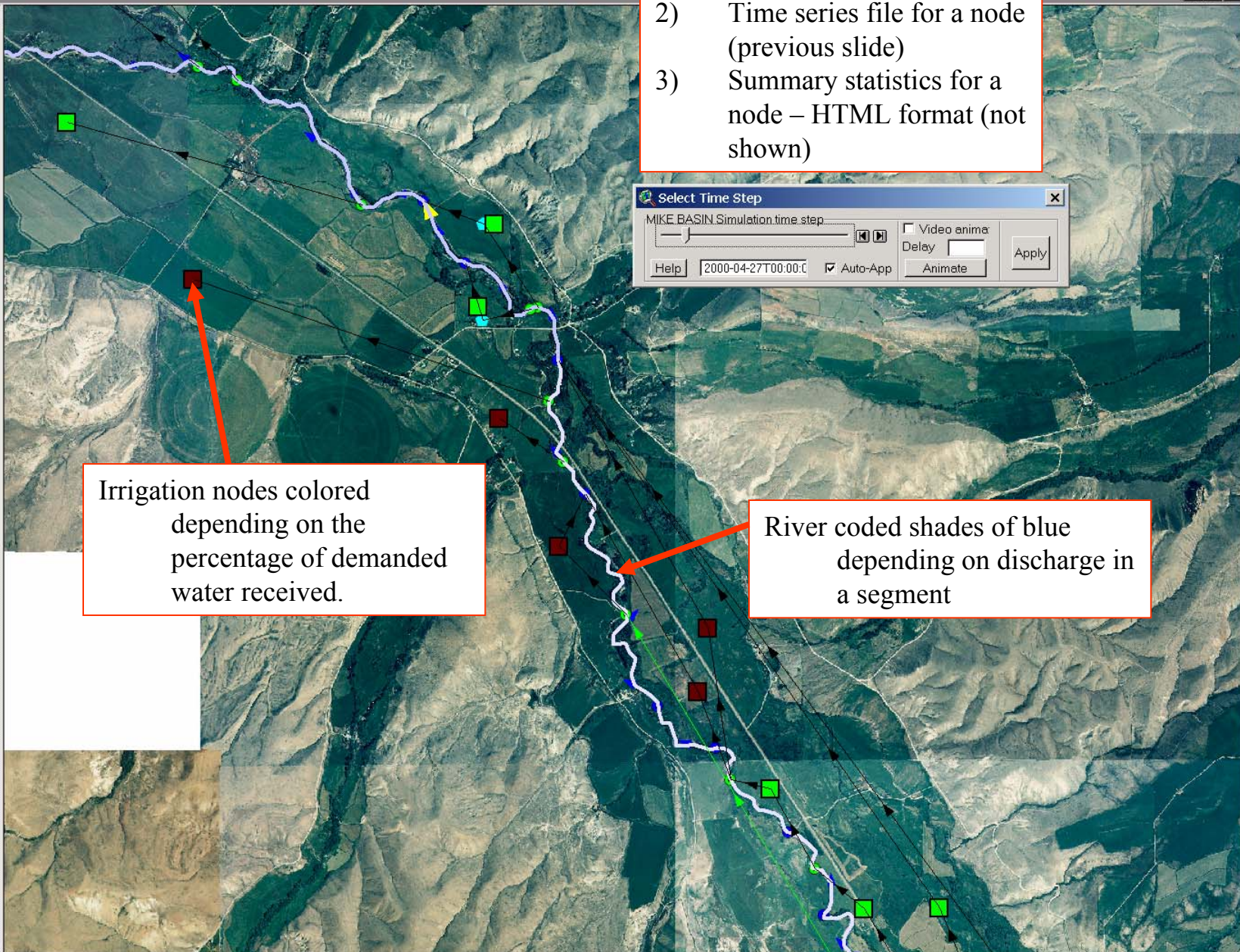
Combined

✓ Irrigation.shp

Withdrawal

Discharge

Combined



Irrigation nodes colored depending on the percentage of demanded water received.

River coded shades of blue depending on discharge in a segment

Results:

- 1) Map view (shown)
- 2) Time series file for a node (previous slide)
- 3) Summary statistics for a node – HTML format (not shown)





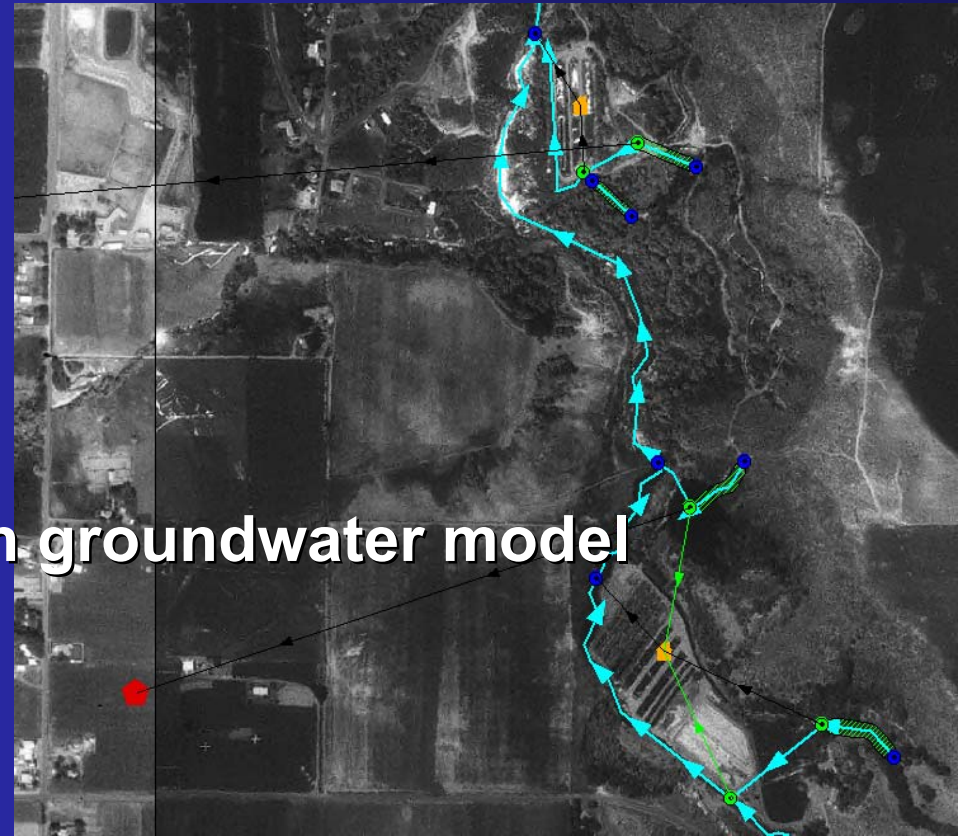
Uses of MIKE Basin Simulations in Idaho?

- Planning and operation tool for meeting minimum stream flow requirements
- Educational and public awareness tool
- Communication tool to build community consensus
- Provides a first step towards more complex models
- Conjunctive use studies

Overview

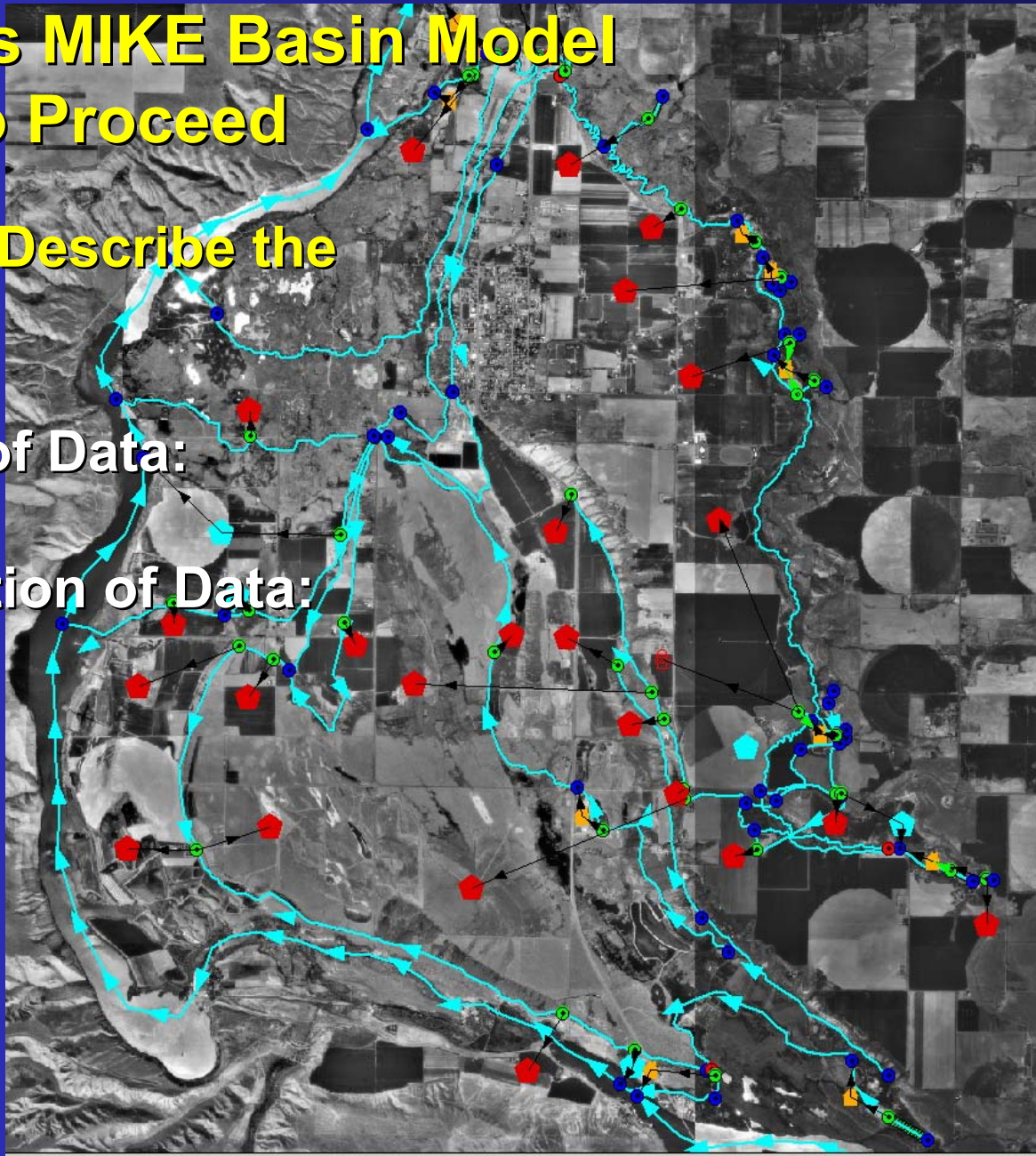
Thousand Springs MIKE Basin Model (TSMBM): Objectives

- Show water movement around Thousands Springs
- Compilation of data
 - GIS
 - Water movement
 - Flow measurement
 - Meteorological
- Identify data gaps
- Eventually couple with groundwater model



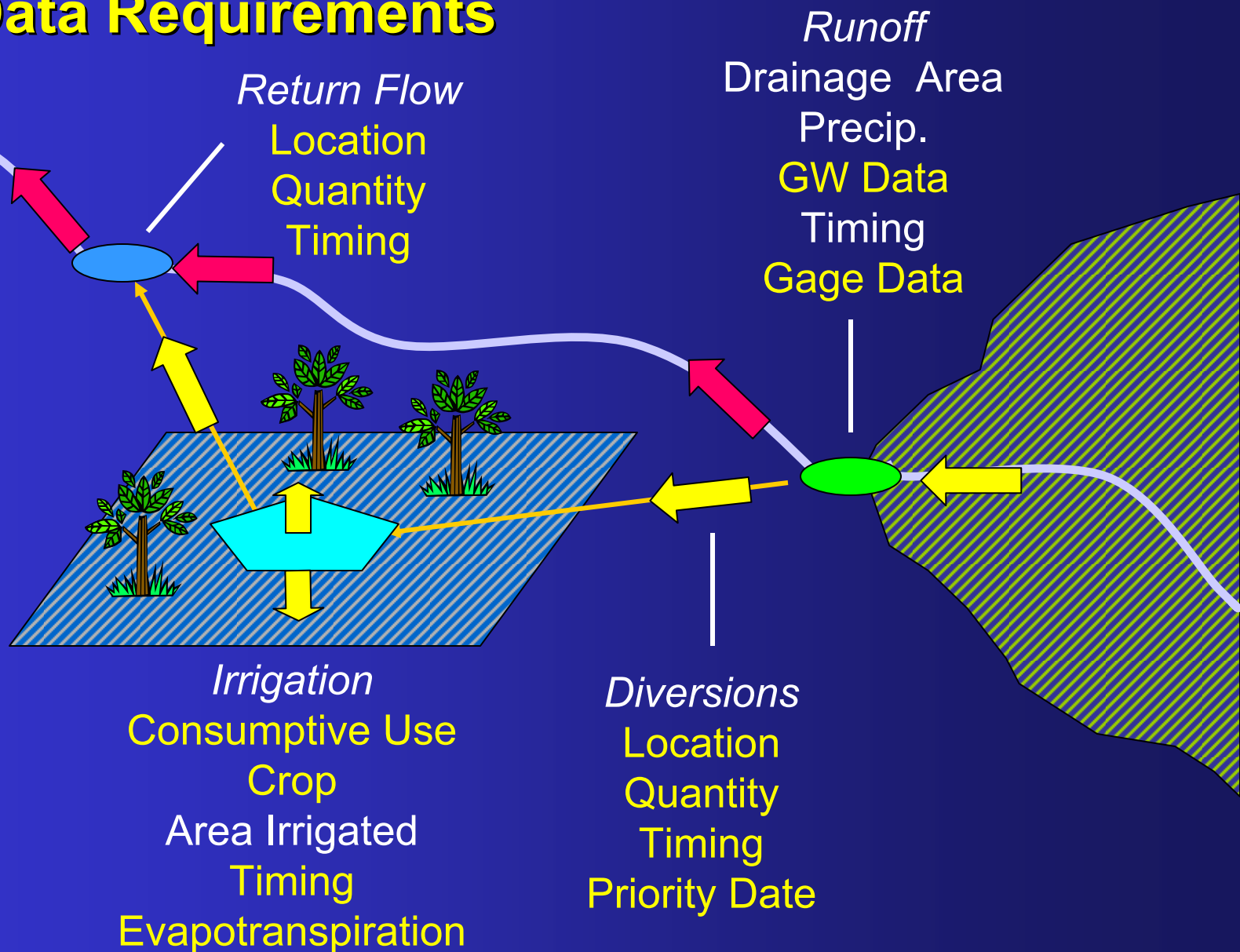
Thousand Springs MIKE Basin Model (TSMBM): How to Proceed

- Model Set Up: **Describe the plumbing**
- Accumulation of Data:
- Format/Population of Data:
- Calibration:
- Verification
- Scenarios:





Data Requirements



Thousand Springs

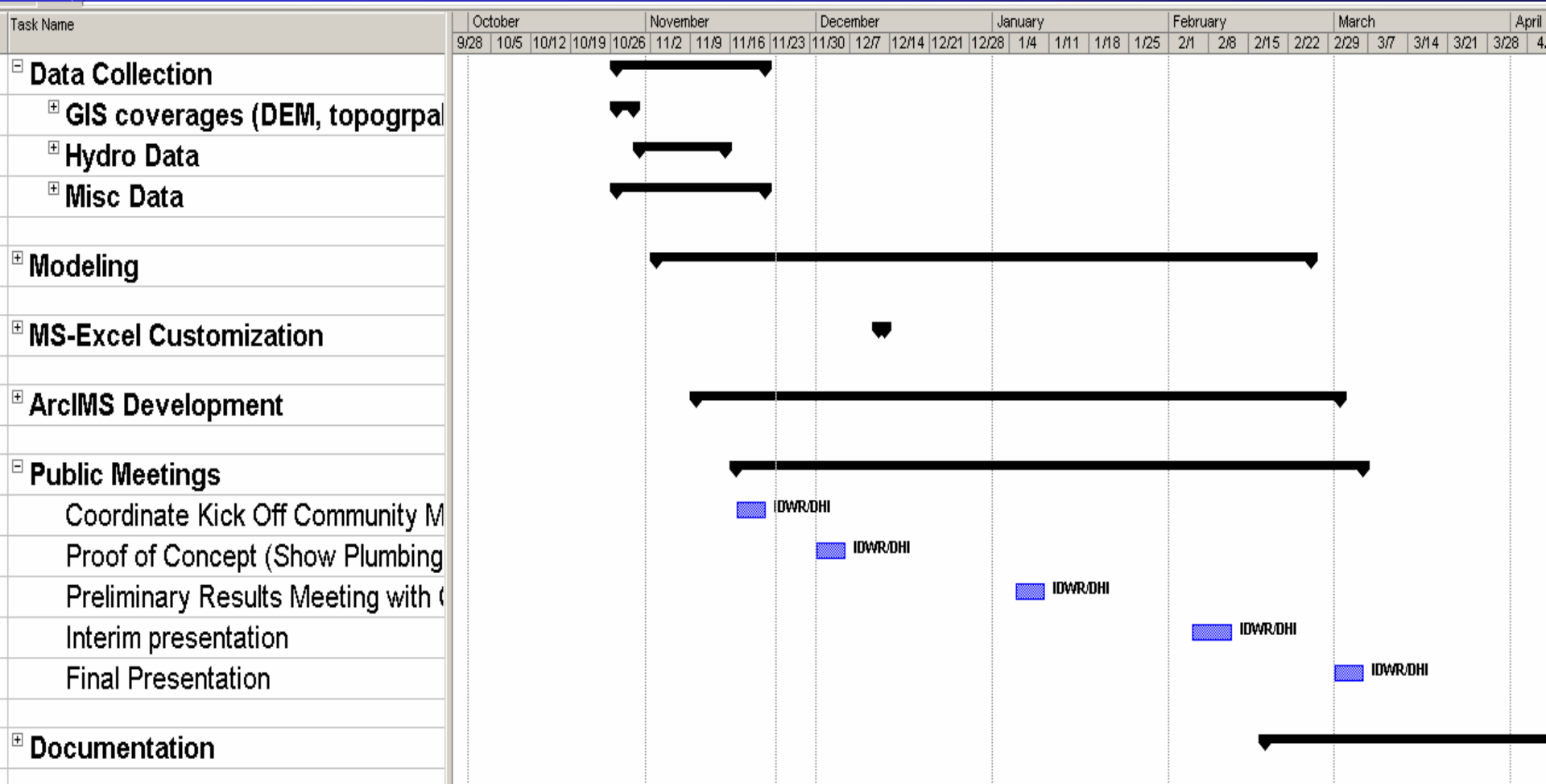


Data Requests

- Immediate data needs:
 - Timing and quantity of flows for diversions
 - Stream flow measurements
 - Return flow locations and quantities
 - Crops grown
 - Irrigation type



Schedule





Conclusion

MIKE BASIN

- An integrated depiction of water availability, movement, and use that can be viewed directly on GIS maps
- A surface water model to examine “what-if” scenarios
- Compilation of hydrologic data from numerous sources in one convenient place
- Identification of data deficiencies to more efficiently guide expenditures for future data collection efforts
- Need your input

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